

What is claimed is:

1. A semiconductor laser comprising:
    - an n-type clad layer;
    - a p-type clad layer;
    - an active layer sandwiched by said n-type clad layer and said p-type clad layer; and
    - a current constriction layer for current confinement and light confinement consisting of at least two layers which is disposed in either of said n-type clad layer and said p-type clad layer,
      - wherein a first layer of said current constriction layer closer to said active layer has a different conductivity type from a conductivity type of either of said clad layers in which said current constriction layer is provided and is made of a material having almost the same refractive index as said clad layer, and
      - wherein a second layer of said current constriction layer farther from said active layer is made of a material having a smaller refractive index than said first layer.
  2. The semiconductor laser of claim 1, wherein said first layer of said current constriction layer is formed to function mainly as a current confinement layer and said second layer thereof is formed to function mainly as a light confinement layer and a width of a stripe trench for injecting current provided in said first layer is smaller than a width of a stripe trench provided in said second layer.
  3. The semiconductor laser of claim 2, wherein said

stripe trench is formed so as to have an inclined surface with respect to a width-direction of said current constriction layer, so that a width of said stripe trench for injecting current provided in said first layer may be  
5 smaller than a width of said stripe trench provided in said second layer.

4. The semiconductor laser of claim 3, wherein said inclined surface of said first layer has a smaller inclination angle than said second layer.

10 5. The semiconductor laser of claim 2, wherein said stripe trench in said first layer and said stripe trench in said second layer are provided in different steps, so that the width of said stripe trench provided in said first layer may be smaller than the width of said stripe trench provided  
15 in said second layer.

6. A semiconductor laser comprising:

an n-type clad layer;

a p-type clad layer;

an active layer sandwiched by said n-type clad layer

20 and said p-type clad layer;

a current constriction layer, formed in either of said n-type and p-type clad layers, in which a stripe trench is formed, said current constriction layer having a different conductivity type from said clad layer, and

25 a light confinement layer formed at said current constriction layer facing said active layer and having a smaller refractive index than said clad layer,

wherein said light confinement layer is formed to have a non-doped type or the same conductivity type as said clad layer in which said light confinement layer is provided.

7. The semiconductor laser of claim 6, wherein said  
5 current constriction layer is formed of a semiconductor  
layer having the same refractive index as said light  
confinement layer.

8. The semiconductor laser of claim 6, wherein a  
thickness of said light confinement layer is set so that a  
10 depletion layer formed between said current constriction  
layer and said light confinement layer may not reach said  
active layer and also that said current constriction layer  
may be close to said active layer.

9. The semiconductor laser of claim 8, wherein said  
15 light confinement layer is formed to have a thickness of  
0.05-0.3  $\mu\text{m}$  and said current constriction layer is formed  
to have a thickness of 0.2 - 0.5  $\mu\text{m}$ .

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